Remarks

In view of the above amendments to the claims and the following discussion, the applicants submit that the claims now pending in the application are not anticipated under the provisions of 35 U. S. C. § 102, or obvious under the provisions of 35 U. S. C. § 103. Furthermore, the applicants believe that all of the claims satisfy the requirements of 35 U. S. C. § 112. Thus, the applicants believe that all of these claims are in allowable form.

OBJECTIONS

A. Drawings

The Examiner objects to the drawings because the feature of claim 10 "performing wobble signal detection in parallel with a plurality of reference signals having different wobble frequencies" is not shown. The applicants have cancelled claim 10 in this paper. Since claim 10 has been cancelled, the basis for the Examiner's objection to the drawings has been removed. Therefore, it is respectfully requested that the Examiner's objection to the drawings be withdrawn.

B. Claims

The Examiner objects to claim 11 as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Claim 11, a multiple dependent claim, depended from claim 10, also a multiple dependent claim. The applicants have cancelled claim 10 in this paper. Since claim 10 has been cancelled, the basis for the Examiner's objection to claim 11 has been removed. Therefore, it is respectfully requested that the Examiner's objection to claim 11 be withdrawn.

PAGE 11/23 * RCVD AT 7/28/2006 9:32:23 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-3/11 * DNIS:2738300 * CSID:609 734 6888 * DURATION (mm-ss):06-28

C. Specification

The Examiner objects to the title of the invention because it is not descriptive. The applicants have amended the title of the invention in this paper to make it descriptive. In view of this amendment to the title of the invention, the basis for the Examiner's objection thereto has been removed. Therefore, it is respectfully requested that the Examiner's objection to the title of the invention be withdrawn.

REJECTIONS

A. 35 U. S. C. § 112

1. Claims 3-4 and 6

Claims 3-4 and 6 stand rejected under 35 U. S. C. § 112, second paragraph as being incomplete for omitting essential steps. In particular, the Examiner indicates that the comparison step of claim 1 omits essential steps upon which these claims rely. The applicants have amended claim 1 to clarify that the comparison step "generates a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and compares the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS)". Support for the amendment to claim 1 is found in the specification at page 2, line 33 to page 3, line 5.

In view of the amendment to claim 1, the basis for the Examiner's rejection of claims 3-4 and 6 under 35 U. S. C. § 112, second paragraph, has been removed. Therefore, it is respectfully requested that this rejection be withdrawn.

PAGE 12/23 * RCVD AT 7/28/2006 9:32:23 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-3/11 * DNIS:2738300 * CSID:609 734 6888 * DURATION (mm-ss):06-28

B. 35 U. S. C. § 102

1. Claims 1 and 8 are not anticipated by Aoki

Claims 1 and 8 stand rejected under 35 U. S. C. § 102(b) as being anticipated by Aoki (U. S. Patent 6,201,773 issued March 13, 2001). The applicants submit that these claims are not anticipated by this reference.

Claim 1 is directed to a method for detecting a wobble signal of an optical disk (*see*, specification at page 1, lines 6-9). In the method an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal (*see*, FIG. 2 and the specification at page 2, lines 23-27) and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal (*see*, FIG. 2 and the specification at page 2, lines 27-29). The comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS) (*see*, FIG. 2 and the specification at page 2, line 33 to page 3, line 5).

Aoki discloses a method for detecting a wobble signal of an optical disc (*see*, Aoki at column 2, lines 32-34). In Aoki, an input signal including the wobble signal is compared with a delayed input signal as a reference signal and output as an output signal indicating the amplitude and phase of the wobble signal (*see*, Aoki at FIG. 8 and column 9, lines 11-34). The comparing step includes multiplying the input signal with the delayed input signal (*see*, Aoki at FIG. 8 and column 9, lines 34-36).

Aoki does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an

PAGE 13/23 * RCVD AT 7/28/2006 9:32:23 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-3/11 * DNIS:2738300 * CSID:609 734 6888 * DURATION (mm-ss):06-28

output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS). Rather, Aoki describes a different method in which an input signal including the wobble signal is compared with a delayed input signal as a reference signal and output as an output signal indicating the amplitude and phase of the wobble signal, wherein the comparing step includes multiplying the input signal with the delayed input signal. Since Aoki does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS), claim 1 is patentable over Aoki.

Claim 8 depends directly from claim 1. For the same reasons as stated above for claim 1, claim 8 is also patentable over Aoki.

2. Claims 1 and 8-9 are not anticipated by Maegawa et al.

Claims 1 and 8-9 stand rejected under 35 U. S. C. § 102(b) as being anticipated by Maegawa et al. (U. S. Patent 6,345,018 issued February 5, 2002). The applicants submit that these claims are not anticipated by this reference.

Claim 1 is directed to a method for detecting a wobble signal of an optical disk (*see*, specification at page 1, lines 6-9). In the method an input signal (IS)

including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal (*see*, FIG. 2 and the specification at page 2, lines 23-27) and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal (*see*, FIG. 2 and the specification at page 2, lines 27-29). The comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS) (*see*, FIG. 2 and the specification at page 2, line 33 to page 3, line 5).

Maegawa et al. discloses a method for detecting a wobble signal of an optical disc (*see*, Maegawa et al. at column 1, lines 7-12). In Maegawa et al., an input signal including the wobble signal is compared with a reference signal and output as an output signal indicating the amplitude and phase of the wobble signal (*see*, Maegawa et al. at FIG. 2 and column 7, lines 27-50). The comparing step includes multiplying the input signal with the reference signal (*see*, Maegawa et al. at FIG. 2 and column 7, lines 43-46).

Maegawa et al. does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS). Rather, Maegawa et al. describes a different method in which an input signal including the wobble signal is compared with a reference signal and output as an output signal indicating the amplitude and phase of the wobble signal, wherein the comparing step includes multiplying the input signal

with the reference signal. Since Maegawa et al. does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS), claim 1 is patentable over Maegawa et al.

Claims 8-9 depend directly from claim 1. For the same reasons as stated above for claim 1, claims 8-9 are also patentable over Maegawa et al.

3. Claims 1, 3 and 6 are not anticipated by Ko et al.

Claims 1, 3 and 6 stand rejected under 35 U. S. C. § 102(e) as being anticipated by Ko et al. (U. S. Patent 6,671,238 issued December 30, 2003). The applicants submit that these claims are not anticipated by this reference.

Claim 1 is directed to a method for detecting a wobble signal of an optical disk (*see*, specification at page 1, lines 6-9). In the method an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal (*see*, FIG. 2 and the specification at page 2, lines 23-27) and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal (*see*, FIG. 2 and the specification at page 2, lines 27-29). The comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the

PAGE 16/23 * RCVD AT 7/28/2006 9:32:23 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-3/11 * DNIS:2738300 * CSID:609 734 6888 * DURATION (mm-ss):06-28

relative phase between the wobble signal (WS) and the reference signal (RS) (*see*, FIG. 2 and the specification at page 2, line 33 to page 3, line 5).

Ko et al. discloses a method for detecting a wobble signal of an optical disc (*see*, Ko et al. at column 1, lines 20-25). In Ko et al., an input signal including the wobble signal is compared with the input signal itself and output as an output signal indicating the amplitude and phase of the wobble signal (*see*, Ko et al. at FIG. 11 and column 12, lines 13-57). The comparing step includes generating a sum signal and a difference signal of the input signal (*see*, Ko et al. at FIG. 11 and column 12, lines 20-24).

Ko et al. does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS). Rather, Ko et al. describes a different method in which an input signal including the wobble signal is compared with the input signal itself and output as an output signal indicating the amplitude and phase of the wobble signal, wherein the comparing step includes generating a sum signal and a difference signal of the input signal. Since Ko et al. does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal

(S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS), claim 1 is patentable over Ko et al.

Claims 3 and 6 depend directly, or indirectly, from claim 1. For the same reasons as stated above for claim 1, claims 3 and 6 are also patentable over Ko et al.

C. 35 U. S. C. § 103

1. Claims 3-4 and 6 are not obvious over Aoki in view of Yoshimura et al.

Claims 3-4 and 6 stand rejected under 35 U. S. C. § 103(a) as being unpatentable over Aoki (U. S. Patent 6,201,773 issued March 13, 2001) in view of Yoshimura et al. (U. S. Patent 6,100,724 issued August 8, 2000). The applicants submit that these claims are not rendered obvious by the combination of these references.

Claims 3-4 and 6 are directed to a method for detecting a wobble signal of an optical disk (*see*, specification at page 1, lines 6-9). In the method an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal (*see*, FIG. 2 and the specification at page 2, lines 23-27) and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal (*see*, FIG. 2 and the specification at page 2, lines 27-29). The comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS) (*see*, FIG. 2 and the specification at page 2, line 33 to page 3, line 5).

Aoki discloses a method for detecting a wobble signal of an optical disc (*see*, Aoki at column 2, lines 32-34). In Aoki, an input signal including the wobble

signal is compared with a delayed input signal as a reference signal and output as an output signal indicating the amplitude and phase of the wobble signal (*see*, Aoki at FIG. 8 and column 9, lines 11-34). The comparing step includes multiplying the input signal with the delayed input signal (*see*, Aoki at FIG. 8 and column 9, lines 34-36).

Aoki does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS). Rather, Aoki describes a different method in which an input signal including the wobble signal is compared with a delayed input signal as a reference signal and output as an output signal indicating the amplitude and phase of the wobble signal, wherein the comparing step includes multiplying the input signal with the delayed input signal. Since Aoki does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS), claims 3-4 and 6 are patentable over Aoki.

Yoshimura et al. discloses a digital signal reproducing circuit (*see*, Yoshimura et al. at column 1, lines 6-10). The digital signal reproducing circuit compares a signal to a delayed signal to detect a phase difference (*see*, Yoshimura et al. at FIGS. 3-4 and column 5, lines 8-11).

Yoshimura et al. does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS). Rather, Yoshimura et al. only discloses a digital signal reproducing circuit that compares a signal to a delayed signal to detect a phase difference. Since Yoshimura et al. does not describe or suggest a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS), claims 3-4 and 6 are patentable over Yoshimura et al.

Furthermore, since Aoki only describes a method in which an input signal including the wobble signal is compared with a delayed input signal as a reference signal and output as an output signal indicating the amplitude and phase of the wobble signal, wherein the comparing step includes multiplying the

input signal with the delayed input signal and Yoshimura et al. only discloses a digital signal reproducing circuit that compares a signal to a delayed signal to detect a phase difference, the combination of these references does not describe or suggest applicant's method as recited in claims 3-4 and 6. In particular, claims 3-4 and 6 recite a method for detecting a wobble signal of an optical disk in which an input signal (IS) including the wobble signal (WS) is compared with a reference signal (RS), the reference signal (RS) corresponding in phase and frequency to the desired wobble signal and then output as an output signal (OS) indicating the amplitude and the phase of the wobble signal, wherein the comparing step includes generating a sum signal (S1) and a difference signal (S2) of the input signal (IS) and the reference signal (RS) and comparing the amplitudes of the sum signal (S1) and the difference signal (S2) to obtain the relative phase between the wobble signal (WS) and the reference signal (RS). Thus, claims 3-4 and 6 are patentable over the combination of these references.

2. Rejection of claims 10/2-10/4 and 10/6 over Aoki in view of Yoshimura et al. and further in view of Kang et al.

In view of the cancellation of claim 10 in this paper, the rejection of claims 10/2-4 and 10/6 over Aoki in view of Yoshimura et al. and further in view of Kang et al. are not discussed. Therefore, it is respectfully requested that this rejection be withdrawn.

3. Rejection of claims 10/1 and 10/8-10/9 over Maegawa et al. in view of Kang et al.

In view of the cancellation of claim 10 in this paper, the rejection of claims 10/1 and 10/8-10/9 over Maegawa et al. in view of Kang et al. are not discussed. Therefore, it is respectfully requested that this rejection be withdrawn.

4. Rejection of claims 10/1, 10/3 and 10/6 over Ko et al. in view of Kang et al.

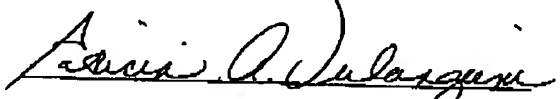
In view of the cancellation of claim 10 in this paper, the rejection of claims 10/1, 10/3 and 10/6 over Ko et al. in view of Kang et al. are not discussed. Therefore, it is respectfully requested that this rejection be withdrawn.

CONCLUSION

Thus, the applicants submit that none of the claims presently in the application are anticipated under the provisions of 35 U. S. C. § 102, or rendered obvious under the provisions of 35 U. S. C. § 103. Furthermore, the applicants believe that all of the claims satisfy the requirements of 35 U. S. C. § 112. Consequently, the applicants believe that all of the claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Ms. Patricia A. Verlangieri, at (609) 734-6867, so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,



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July 28, 2006

PAGE 22/23 * RCVD AT 7/28/2006 9:32:23 AM [Eastern Daylight Time] * SVR:USPTO-EFXRF-3/11 * DNIS:2738300 * CSID:609 734 6888 * DURATION (mm-ss):06-28